

Serial No.: 10/533,663
Examiner: Omar Rojas
Title: DISPLAY ELEMENT AND DISPLAY DEVICE USING THE SAME
Page 7 of 11

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REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Editorial revisions have been made in claims 1, 3, 5-9, 11-14, 22, 25-26 and 28. The revisions are supported by the original disclosure. New claim 30 has been added. No new matter has been introduced. Claims 2, 4 and 15-21 have been canceled without prejudice. Claims 1, 3, 5-14 and 22-30 are pending in the application.

Claim Objections

Claims 14, 16, 21 and 25 are objected to because of informalities. Claim 14 has been editorially revised. Claims 16 and 21 have been canceled, rendering the objection moot. Claim 1 has been revised to include "a plurality of actuators," providing a proper antecedent basis for "the actuator" recited in claim 25.

Claim Rejections – 35 USC § 102

Claims 1-3, 5, 8, 12 and 14 are rejected under 35 USC § 102(b) as being anticipated by Maher (US 4,128,299). Applicants respectfully traverse this rejection. Claim 1 has been rewritten to include the feature of claims 2 and 4. Claim 2 has been canceled. Applicants are not conceding the correctness of the rejection as applied to claim 2.

Claim 1 is directed to a display element including a waveguide, wherein a light propagated in the waveguide is extracted to outside from a waveguide lateral face. Claim 1 also requires at least a portion of a core on a waveguide lateral face be deformed so as to change the reflection direction of light propagated in the waveguide thereby to extract the light out of the waveguide lateral face.

Maher fails to disclose a core on a waveguide lateral face that is deformed so as to change the reflection direction of light and thereby to extract the light out of the waveguide, as required by claim 1. On the contrary, Maher specifically discloses that the waveguide is non-deformable (see Maher, col. 2, lines 48-50, and Figures 1-5). In addition, Maher does not extract the light out of a waveguide lateral face as required by claim 1. Rather, Maher discusses a waveguide optical modulator for modulating a light

Serial No.: 10/533,663
Examiner: Omar Rojas
Title: DISPLAY ELEMENT AND DISPLAY DEVICE USING THE SAME
Page 8 of 11

propagating in the waveguide by deforming a cladding on a surface of the waveguide to a degree sufficient to interfere with the evanescent field of the propagating light (see Maher, Abstract).

For at least these reasons, claim 1 is patentable over Maher. Claims 3, 5, 8, 12 and 14 depend from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claims.

Claims 1-7, 9, 11, 12 and 14 are rejected under 35 USC § 102(b) as being anticipated by Ghezze et al. (US 5,367,585). Applicants respectfully traverse this rejection. Claim 1 has been rewritten to include the feature of claims 2 and 4. Claims 2 and 4 have been canceled. Applicants are not conceding the correctness of the rejection as applied to claims 2 and 4.

Claim 1 requires a display element having a plurality of actuators that are operated selectively to deform a surface shape of at least a portion of a core on the waveguide lateral face to a concavo-convex shape so as to change the reflection direction of light propagated in the waveguide thereby to extract the light out of the display element from the waveguide lateral face. By selectively deforming the surface shape of the core to a concavo-convex shape, light with desired properties, like light density or direction, can be extracted out of the display element from the waveguide lateral face. As a result, the present display element can produce a variety of light effects.

Ghezze et al. fail to disclose a display element that extracts a light out of the display element, as required by claim 1. Instead, Ghezze et al. discuss a photonic switch, where a light only propagates within or transfers between waveguides, while being completely silent as to extracting the light outside a display element, as required by claim 1. Moreover, Ghezze et al. fail to disclose a display element that extracts a light outside the display element by changing the reflection direction of light. On the contrary, Ghezze et al. specifically disclose bending a waveguide with only minor angular deflection to reduce optical bending losses (see Ghezze et al., col. 3, lines 3-5). The transfer of light from one waveguide to the other waveguide is achieved by bringing the

Serial No.: 10/533,863
Examiner: Omar Rojas
Title: DISPLAY ELEMENT AND DISPLAY DEVICE USING THE SAME
Page 9 of 11

two waveguides close enough so that light can partially pass from one waveguide to the other in Ghezzi et al. This is different from the present arrangement of changing the reflection direction of light to extract light out from the display element.

For at least these reasons, claim 1 is patentable over Ghezzi et al. Claims 3, 5-7, 9, 11, 12 and 14 depend from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claims.

Claims 1, 15-19, 21 and 28 are rejected under 35 USC § 102(b) as being anticipated by Dalisa et al. (US 4,218,302). Applicants respectfully traverse this rejection. Claim 1 has been rewritten to include the feature of claims 2 and 4. Claims 15-19 and 21 have been canceled. Applicants are not conceding the correctness of the rejection as applied to claims 15-19 and 21.

Claim 1 requires a display element having a plurality of actuators that are operated selectively to deform a surface shape of at least a portion of a core on the waveguide lateral face to a concavo-convex shape so as to change the reflection direction of light propagated in the waveguide thereby to extract the light out of the waveguide from the waveguide lateral face. Dalisa et al. fail to disclose such actuators as recited by claim 1. Nor do Dalisa et al. disclose a deformable core as required by claim 1.

For at least these reasons, claim 1 is patentable over Dalisa et al. Claim 28 depends from claim 1 and is patentable along with claim 1 and needs not be separately distinguished at this time. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claim.

Claim Rejections – 35 USC § 103

Claim 13 is rejected under 35 USC 103(a) as being unpatentable over Maher. Applicants respectfully traverse this rejection. Claim 13 depends from claim 1 and is patentable over Maher for at least the same reasons discussed above regarding claims 1-3, 5, 8, 12 and 14. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claim.

Serial No.: 10/533,663
Examiner: Omar Rojas
Title: DISPLAY ELEMENT AND DISPLAY DEVICE USING THE SAME
Page 10 of 11

Claim 20 is rejected under 35 USC 103(a) as being unpatentable over Dalisa et al., in view of Kamiyo (US 4,708,914). Applicants respectfully traverse this rejection. Claim 20 is canceled, rendering this rejection moot. Applicants are not conceding the correctness of the rejection.

Claim 24 is rejected under 35 USC 103(a) as being unpatentable over Dalisa et al., in view of Zhou et al., "Waveguide Panel Display Using Electromechanical Spatial Modulators," SID 98 Digest, pages 1022-25. Applicants respectfully traverse this rejection. Claim 24 depends from claim 1 and is patentable over Dalisa et al. in view of Zhou et al. for at least the same reasons discussed above regarding claims 1, 15-19, 21 and 28. Zhou et al. do not remedy the deficiencies of Dalisa et al. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claim.

Claims 25 and 26 are rejected under 35 USC 103(a) as being unpatentable over Dalisa et al., in view of Ge (US 6,369,867). Applicants respectfully traverse this rejection.

Claim 25 depends from claim 1 and is patentable over Dalisa et al. in view of Ge for at least the same reasons discussed above regarding claims 1, 15-19, 21 and 28. Ge does not remedy the deficiencies of Dalisa et al. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claim.

Claim 26 depends from claim 22. Claim 22 was indicated as reciting allowable subject matter and has been rewritten into independent form. Claim 26 is patentable along with claim 22 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the reference to the remaining features of the rejected claim.

Claims 27 and 29 are rejected under 35 USC 103(a) as being unpatentable over Maher, in view of Lu et al. (US 6,912,082). Applicants respectfully traverse this rejection. Applicants note that the effective prior art date of the Lu et al. reference is

Serial No.: 10/533,663
Examiner: Omar Rojas
Title: DISPLAY ELEMENT AND DISPLAY DEVICE USING THE SAME
Page 11 of 11

March 11, 2004. The present application, however, has a PCT international filing date of November 4, 2003. Thus, Lu et al. are not available as prior art and the rejection should be withdrawn.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.

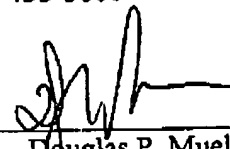


Respectfully submitted,

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